

ABSTRACT OF THE DISCLOSURE

In an electron beam proximity exposure apparatus comprising an electron beam source, which emits a collimated electron beam, a mask substrate on which a plurality of masks with apertures are formed, a mask moving mechanism, which moves the mask substrate, and a stage, which holds and moves an object, the mask moving mechanism moves the mask substrate so that one of the plurality of masks is arranged on a path of the electron beam in proximity to a surface of the object, and a pattern corresponding to the aperture of the one of the plurality of masks is exposed on the surface of the object with the electron beam having passed through the aperture. Thus, the frequency of taking the mask out of the apparatus to exchange the mask is reduced, so that the throughput of the apparatus is improved.